

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/GB2004/002663

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H02P6/08

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H02P

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PATENT ABSTRACTS OF JAPAN vol. 2003, no. 05, 12 May 2003 (2003-05-12) -& JP 2003 003985 A (MITSUBISHI HEAVY IND LTD), 8 January 2003 (2003-01-08)	1,2,4,5
Y	abstract ----- -/--	3

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

22 September 2004

Date of mailing of the international search report

19. 01 2005

Name and mailing address of the ISA

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PC 1/GB2004/002663

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	SUNG-JUN KIM ET AL: "A novel filter design for suppression of high voltage gradient in voltage-fed PWM inverter" APPLIED POWER ELECTRONICS CONFERENCE AND EXPOSITION, 1997. APEC '97 CONFERENCE PROCEEDINGS 1997., TWELFTH ANNUAL ATLANTA, GA, USA 23-27 FEB. 1997, NEW YORK, NY, USA, IEEE, US, 23 February 1997 (1997-02-23), pages 122-127, XP010215809 ISBN: 0-7803-3704-2 Paragraph I. Introduction -----	3
A	US 4 623 830 A (PENEDER FRANZ ET AL) 18 November 1986 (1986-11-18) column 1, line 37 - line 42 column 2, line 52 - line 53 -----	3

# INTERNATIONAL SEARCH REPORT

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PCT/GB2004/002663

## Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

3

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claim: 3

Electric submersible pump having filtering means  
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2. claims: 6-17

Drive circuit with a variable voltage source  
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3. claims: 18,20

Drive circuit having means for minimising the output power  
of the drive circuit at a fixed speed  
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4. claims: 19,21,22

Drive circuit with means for maximising the motor speed for  
a given output power  
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5. claims: 23-25

Downhole permanent magnet motor having an annular gap such  
that the fluid flow is turbulent during rotation of the  
rotor above a critical speed  
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6. claims: 26-29

Downhole motor having a bearing with spiral grooving  
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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 2003003985	A	08-01-2003	NONE	
US 4623830	A	18-11-1986	AT 21982 T	15-09-1986
			CA 1218694 A1	03-03-1987
			DE 3460615 D1	09-10-1986
			EP 0131815 A1	23-01-1985
			ES 8506949 A1	16-11-1985
			IN 161365 A1	14-11-1987
			ZA 8405346 A	27-03-1985